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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/428,468	10/28/1999	SAID O. BELHAJ	BELHAJ5	4691

7590 12/04/2002

FARKAS & MANELLI PLLC  
2000 M STREET NW  
7TH FLOOR  
WASHINGTON, DC 200363307

EXAMINER

SPENCER, WILLIAM C

ART UNIT	PAPER NUMBER
2675	10

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

 <b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/428,468	BELHAJ, SAID O.
	<b>Examiner</b> William C. Spencer	<b>Art Unit</b> 2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 19 August 2002.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1,4-6,8-10 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,4-6,8-10 and 14-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)  
 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 5) Notice of Informal Patent Application (PTO-152)  
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-5, 8-10 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsu, U.S. Patent no. 6,417,787.

As to claim 1, Hsu discloses a switch matrix in FIG. 4A with timing shown in FIG. 4B. In col. 3, line 56 through col. 4, line 8, “forward direction detecting” is disclosed, where the rows are driven and the column signals are sensed (FIG. 4B left), and “reverse direction detecting” is disclosed, where the columns are driven and the row signals are sensed (FIG. 4B right). As disclosed in col. 4, lines 24-28, the first embodiment uses the circuit of FIG. 5 for keys 42, 44 of FIG. 4A. As disclosed in col. 3, line 24, the original keyboard of MxN keys is increased to 2xMxN keys, which is greater than the product of rows and columns.

As to claims 4, 5, 9, 14 and 15, Hsu discloses a keyboard. Inherently, the keys are momentary (temporary connection) pushbuttons.

As to claims 8 and 10, the number of switches is twice the product of the number of rows and the number of columns.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu.

Refer to above discussion of claims 1, 4 and 8.

As to claim 16, the switch matrix of Hsu uses the method described above. As to claim 17, Hsu discloses setting port A for driving and port B for receiving in col. 4, lines 29-31 and setting port B for driving and port A for receiving in col. 4, lines 37-39. Rudimentary understanding shows that key 52 will only be sensed in the first case. Hsu does not disclose a preferred connection of the ports A and B to the rows or columns, but there are only two possibilities. Hsu goes on to describe comparison between the scanning results in both directions. In a case where port A is connected to a column and B to a row, key 52 is sensed by the presence of the column voltage on the row conductor (in the absence of signal in the opposite direction) and key 54 is sensed by the presence of the row voltage on the column conductor.

As to claim 18, Hsu discloses a keyboard. Inherently, the keys are momentary (temporary connection) pushbuttons.

Further as to claims 6 and 16-20, it would have been obvious to one skilled in the art at the time of the invention that any type of switch can be scanned by a switch matrix, providing

the operator knows not to connect too many switches at a time. The advantage is that more than one type of switch can be used.

***Response to Arguments***

Applicant's arguments are moot in view of the new ground(s) of rejection. The previous indication of allowability has been withdrawn.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Spencer whose telephone number is 703-306-5842.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703-306-0377.



STEVEN SARAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600